Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT D. STRONG

Appeal No. 1998-2739
Application No. 07/999,016

ON BRIEF

Before JERRY SMITH, LALL and DIXON, Administrative Patent Judges

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1 through 24, which constitute all the claims in the application.

The disclosed invention relates to a method and apparatus for associating meanings to spoken utterances in a speech recognition system. Conventional speech recognition systems do

not evaluate one or more sequence of words to determine an appropriate response or action. In contrast, the conventional speech recognition systems respond in a predetermined way when a word or phrase is recognized by the system. The present invention associates meanings to utterances by evaluating expressions that define meanings of one or more sequences of words. After performing steps to recognize a sequence of words, the present invention evaluates the expressions or meanings of the words to determine what action should be performed. The invention may be particularly useful in a speech recognition system which allows for the dynamic creation of language models and does not precompute responses to all recognizable utterances. A language model is a network or sequence of words that may be detected in a speech recognition system, and which has a specified meaning within the current operating context of a system. The language models are typically implemented as finite state automata. A plurality of data structures termed “speech rules” are provided in a speech recognition system. Each speech rule

comprises a language model and an expression that defines a meaning of the speech rule. A current language model is then generated from each of the language models of the plurality of

speech rules. The current language model may be generated upon the detection of speech. The current language model is then provided to the recognizer that recognizes words in the detected speech by referencing the current language model. At this point, sequences of words have been recognized by the speech recognition system. Subsequently, the speech recognition system of the present invention can determine what action the system must perform by evaluating the expressions of those speech rules that have phrases that match the recognized sequence of words. For example, the system determines that the recognized sequence of words matches a phrase of a first speech rule and that the recognized sequence of words includes at least one word that matches a phrase of second speech rule. The system will then perform an action only after evaluating the first and second expressions associated with the matched first and second speech rules, respectively. A further understanding of the invention can be

obtained from the following claim:

> 1. A method of associating meanings to utterances in a speech recognition system comprising the following steps:
>
> a. providing a plurality of speech rules, each speech rule comprising a language model and an expression defining a meaning of said speech rule;
>
> b. generating a current language model from each said language model of said plurality of speech rules and providing said current language model to a recognizer;
>
> c. said recognizer recognizing words in detected speech by referencing said current language model to generate a recognized sequence of words;
>
> d. receiving said recognized sequence of words from said recognizer, and determining that said recognized sequence of words matches a phrase of a first speech rule of said plurality of speech rules and that said recognized sequence of words comprises at least one word that matches a phrase of a second speech rule of said plurality of speech rules; and
>
> e. evaluating a first expression of the first speech rule and a second expression of the second speech rule, wherein the evaluation of the first expression depends on the evaluation of the second expression and performing actions in said speech recognition system only after evaluating the first and second expressions.

The examiner relies on the following references:

Schmandt, et al. (Schmandt), Computer, vol. 23, no. 8, published by the IEEE Computer Society, “Augmenting a Window System with Speech Input”, pgs.

50, 55 (August 1990).

Holmes, “Speech Synthesis and Recognition”, published by Chapman & Hall (NY), pgs. 129-135, 152-153 (1988).

Claims 1 through 24 stand rejected under 35 U.S.C. § 103 as being obvious over Schmandt in view of Holmes.

Rather than repeat in toto the arguments of appellant and the examiner, we make reference to the briefs[1] and the answer for the respective details thereof.

OPINION

We considered the rejections advanced by the examiner and the supporting arguments. We have, likewise reviewed the appellant’s arguments set forth in the briefs.

We reverse.

In our analysis, we are guided by the general proposition that in an appeal involving a rejection under 35 U.S.C. § 103,

[1] A reply brief was filed as paper no. 26, along with a corrected (relating to formalities) appeal brief, paper no. 25. However, in the examiner’s answer, paper no. 24, the earlier filed brief, paper no. 23 was considered. The reply brief was entered into the record by the examiner, see paper no. 27.

an examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to the applicant to overcome the prima facie case
with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cit. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cit. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir.

1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). We are further guided by the precedent of our
reviewing court that the limitations from the disclosure are not to be imported into the claims. In re Lundberg, 244 F.2d 543, 113 USPQ 530 (CCPA 1957); In re Queener, 796 F.2d 461, 230 USPQ 438 (Fed. Cir. 1986). We also note that the arguments not made separately for any individual claim or claims are considered waived. See 37 CFR § 1.192(a) and (c).

In re Baxter Travenol Labs., 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991) ("It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobviousness distinctions over the prior art."); In re Wiechert, 370 F.2d 927, 936, 152 USPQ 247, 254 (CCPA 1967)("This court has uniformly followed the sound rule that an issue raised below which is not argued in that court, even of it has been properly brought here by reason of appeal is regarded as abandoned and will not be considered. It is our function as a court to decide disputed issues, not to create them.").

Analysis

According to appellant, the following three separate groups of claims have been elected:

1. Claims 1 through 5,
2. Claim 6,
3. Claims 7 through 24.

We will discuss these groups separately below.

Rejection of claims 1 through 5

We consider claim 1 as representative of this group. The

examiner at pages 4 through 7 of the examiner's answer gives a lengthy explanation of the rejection of claim 1. The examiner shows how Schmandt and Holmes together make the claimed limitations of claim 1 obvious. Appellant argues, brief at page 7, that the combination of Schmandt and Holmes fails to disclose all of the claimed elements of claim 1. In particular, none of these references shows the required step of:

> Evaluating a first expression of the first speech rule and a second expression of the second speech rule, wherein the evaluation of the first expression depends on the evaluation of the second expression, and performing actions in said speech recognition system only after evaluating the first and second expressions.

Furthermore, appellant argues, id. at 8-10, that

> Assuming, for the sake of argument, that this is the case, and also assuming that the second expression corresponds to a subtemplate that becomes active when a window name is spoken, then Schmandt does not disclose that evaluation of the name of a window depends upon an evaluation of a word in a subtemplate. In contrast, the name of the window is evaluated and acted upon when
>
> the name is recognized. For example, Schmandt discloses that speaking a window's template pops the window to the foreground and moves the mouse pointer to the middle of the window. . . . Schmandt does not teach that the window is popped to the foreground

> after evaluating a recognized word in the subtemplate for the window or application. . . .
>
> It has also been suggested [by the examiner] that Holmes provides this limitation as evaluating words of a multi-level hierarchical hidden Markov model before evaluating the sequence of words. . . . This disclosure in Holmes pertains to the process of recognizing words or sequences of words based on their acoustic features. This disclosure does not concern the subsequent step of the present invention that evaluates the expressions defining the meaning of speech rules that have phrases that have been determined to match recognized sequences of words. Thus, Holmes is concerned only with recognition of word or sequences of words and not evaluation of their meanings and actions to be performed by a speech recognition system in response thereto.

The examiner in his "Response to argument," section of the answer at pages 9 and 10, does not grapple with this contention of appellant. Instead, the examiner only responds to the second argument made by appellant that the combination of the two references is not justified.

We are persuaded by the appellant's arguments. We find that Schmandt does not teach that the various speech rules correspon-ding to the various applications are evaluated to be active before the process of recognition of the acoustic features of

the utterances is executed as claimed by the above recited

step of claim 1. Nor do we find any disclosure in Holmes which will cure the deficiency of Schmandt. Therefore, we do not sustain the rejection of claim 1 and its dependent claims 2 through 5 over Schmandt and Holmes.

Rejection of claim 6

Claim 6, like claim 1 above, is rejected under 35 U.S.C. § 103 as being obvious over Schmandt and Holmes. The examiner states, answer at page 8, that "[a]s per claim 6, 7, 13 and 19, the limitations are discussed in the limitations of claim 1". Appellant, brief at pages 10 and 11, makes the same argument regarding claim 6 as made in regard to claim 1, except that
claim 6 is an apparatus claim. Nor has the examiner made any further response regarding claim 6. Therefore, for the same rationale as claim 1, we do not sustain the rejection of claim 6 over Schmandt and Holmes.

Rejection of claims 7 through 24

As stated before, the examiner's position regarding claims 7, 13, answer at page 8, is that "[a]s per claims 6, 7, 13 and 19, the limitations are discussed in the limitations of claim 1".

Each of the claims 7, 13 and 19 contains a limitation correspon-ding to the limitation recited above in claim 1. Appellant argues claims 7, 13 and 19 at pages 12 and 13 of the brief. We find that these arguments are the same as discussed above in regard to claim 1. Therefore, for the same rationale, we do not sustain the rejection of claims 7 through 24 over Schmandt and Holmes.

In conclusion, we have not sustained the rejection of claims 1 through 24 under 35 U.S.C. § 103 over Schmandt and Holmes.

REVERSED

JERRY SMITH Administrative Patent Judge	)	
PARSHOTAM S. LALL Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH L. DIXON Administrative Patent Judge	)	

vsh

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN
12400 WILSHIRE BLVD.
7TH FLOOR
LOS ANGELES, CA 90025